

SEQUENCE LISTING

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<120> PREPARATION OF RECOMBINANT ROTAVIRUS PROTEINS IN MILK OF TRANSGENIC NON-HUMAN MAMMALS

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<150> EP 04/290 589

<151> 2004-03-04

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<170> PatentIn version 3.3

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<210> 6

<211> 2797

<212> DNA

<213> Artificial sequence

<220>

<223> VP2 strain RF open reading frame, modified sequence

and with signal peptide

<400> 6

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<210> 7

<211> 783

<212> DNA

<213> Porcine rotavirus

<220>

<223> VP4 gene for capsid protein, partial cds

<400> 7

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gactccacaa	ctgtcaagcc	attattagat	ggtccggacc	aaccaaccac	tttcaaccca	180
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aacaatatcg	atagatggtt	ggctactata	ctaattgaac	caaacgtgca	agcaactaat	300
agaatataca	atccctttgg	tcagcaagaa	actttatcg	ttgaaaatac	ataccagaca	360
caatggacgt	tcattgtgt	aagtaaaact	acactagctg	gaagttatac	acagcatgga	420
ctattgctct	ctacaccaaa	ctcatacgct	gtaatggat	tcagcggtag	aatatataca	480
tataatggaa	ccacgccaaa	cgcagcaaca	ggatactatt	cagctactga	ctatgacaca	540
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actgagtata	tcaatcacgg	attacctccc	atacaaaata	cgaggaatgt	tgtgccagta	660
tccttatcg	ctagagagat	agtgcacaca	agagctcaag	ttaatgaaga	tattgttgtt	720
tcaaaaactt	cactttggaa	agaaatgcaa	tataacagag	acataaccat	aagattcaat	780
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<210> 8
<211> 799
<212> DNA
<213> Human rotavirus

<220>
<223> P1B VP4 gene, partial cds

<400> 8						
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gacatgggaa	gattaatgtat	tcaactatacg	tggaaccagt	tttagatgg	ccttatcaac	180
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atgttagtca	aacaaataga	caatataattt	tatttggtga	aaataagcag	tttaatata	360
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cggatttaaa	taatataatca	attataattc	attcagagtt	ttatatacatt	ccaagatctc	600
aagaatctaa	atgtatgag	tatattaata	atggtttgcc	accaattcag	aataactagga	660
acgtagttcc	attatctcta	tcatccagat	ctattcaata	taggagagca	caagttatg	720
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<210> 9
<211> 875
<212> DNA
<213> Human rotavirus

<220>
<223> P3 truncated VP4 protein gene, partial cds

<400> 9						
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acggatatg	cgcctgtcga	ctggggacat	ggtgaattgc	ctgactctac	attagtgcac	180
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ttaattgcgc	ctactagaga	aggaaagtt	gctgaaggta	cgaatactac	tgacagatgg	300
ttcgcttgc	tactagttga	gccaaatgtg	caaaatacac	aaaggcaata	cgtatttagat	360
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ttcattaaat	tgacgcccc	cggAACgtac	actcaatact	caaccttgc	aacaccgc	480
aagttatgcg	cgtgaatgaa	aagagataac	agagtatact	ggtatcaagg	aacgacaccg	540
aacgcattag	agagctattta	cttgacaata	aacaatgaca	acagcaacgt	ttcaagtgc	600
gctgaattcc	atttgatacc	gcaatcg	actgccatgt	gtacacaata	tataaacaat	660

ggtttaccac caattcagaa tacaaggaat attgtaccag taaatattac atctagacag	120
attaaagaca taagagctca gatgaatgaa gacatagtga tatcaaaaac ttgcgtatgg	780
aaagaaaatgc aatataatac agatataatc attagattta aatttgctaa ttcaataatc	840
aaatcaggtg ggctaggtt aaatggtcc gaaat	875

<210> 10
 <211> 1194
 <212> DNA
 <213> rotavirus

<220>
 <223> VP6 strain RF open reading frame

<400> 10

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atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat	180
tttGattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg	240
gcccgcata caattgatta tttgttagat tttgtagata atgtatgtat ggacgaaatg	300
gttagagaat cacaagaaa tggatttgc ccacaatcag attcacttat aaagttatca	360
ggcattaaat taaaagaat aaattttgac aattcatcag aatacataga gaactggaat	420
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tcagcttcat tcacgttcaa cagatcacaa cccgctcatg ataacttgc gggtacgatg	540
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gcccgcata atacgcaaca atttgcgat attgtacagc ttcaagggt gttgactaca	660
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<210> 11
 <211> 1194
 <212> DNA
 <213> Artificial sequence

<220>
 <223> VP6 strain RF open reading frame, modified sequence

<400> 11

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atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat	180
tttGattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg	240
gcccgcata caattgatta tttgttagat tttgtagata atgtatgtat ggacgaaatg	300
gttagagaat cacaagaaa tggatttgc ccacaatcag attcacttat aaagttatca	360
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ggactcacgc ttagaattga atctgcagtt	tgtgaatcag tacttgccga	cgcaagcgaa	1020
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tttccaccag gtatgaattg gactgatttgc	atcactaact attcaccatc	tagagaggat	1140
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<210> 12
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 12			
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atgaatggaa atgagttcca aactggagga	attggtaatc taccgattag	aaatttggaaat	180
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<210> 13
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

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gcccgaata caattgatta tttttagat	ttttagata atgtatgtat	ggacgaaatg	300
gttagagaat cacaagaaa tggaaattgca	ccacaatcag attcacttat	aaagttatca	360
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<210> 14

<211> 1194

<212> DNA

<213> Artificial sequence

<220>

<223> VP6 strain RF open reading frame, modified sequence

<400> 14

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gttagagaat	cacaaagaaa	tggaattgca	ccacaatcag	attcacttat	aaagttatca	360
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tggctcaatg	cgggatcaga	aattcaggtc	gctggattcg	actactcatg	tgcaataaac	600
gcccgcagcta	atacgcaaca	atttgagcat	attgtacagc	ttcgaagggt	gttgactaca	660
gctacaataa	ctcttttacc	agatgcagaa	agatttagtt	ttccaagagt	gattacttca	720
gctgacggag	cgactacatg	gtacttcaat	ccagtgattc	tttagacaaa	taacgttcaa	780
atagagttc	tactaaacgg	gcagataata	aatacttacc	aagcaagatt	tggaaacgatc	840
atagctagaa	atttgatac	aatttagattg	tcatttcagt	tgtgagacc	accaaataatg	900
acaccagcgg	tagccgcgtt	atttccaaat	gcccgcacat	ttgaacatca	cgcaacagta	960
ggactcacgc	ttagaattga	atctgcagtt	tgtgaatcag	tacttgcgaa	cgcaagcgaa	1020
acaatgctag	cacaagtgcac	atctgttaga	caagaataacg	cgataccagt	tggaccagtt	1080
tttccaccag	gtatgcagtt	gactgatttgc	atcactaact	attcaccatc	tagagaggat	1140
aacttgcagc	gtgtatttac	agtggcttcc	attagaagca	tgcttgc当地	atga	1194

<210> 15

<211> 1194

<212> DNA

<213> Artificial sequence

<220>

<223> VP6 strain RF open reading frame, modified sequence

<400> 15

atggatgtcc	tgtactcctt	gtcaaaaaact	cttaaagatg	ctagagacaa	aattgtcgaa	60
ggcacattat	actcccaagt	cagtgtatcta	attcaacaat	ttaatcaaataat	gataattact	120
atgaatggaa	atgagttcca	aactggagga	attggtaatc	taccgatttag	aaatttggaaat	180
tttgattttg	gattacttgg	aacaactcta	ctaaatttag	atgctaacta	cgtcgaaacg	240
gcccccaata	caattgatta	ttttgttagat	ttttagata	atgtatgtat	ggacgaaatg	300
gttagagaat	cacaaagaaa	tggaattgca	ccacaatcag	attcacttat	aaagttatca	360
ggcattaaat	ttaaaagaat	aaattttgac	cagtcatcag	aatacataga	gaactggaat	420
ttgcaaaata	gaagacaaag	aacgggtttt	acatttcata	aaccaaataat	tttcccttat	480
tcagcttcat	tcacgttcaa	cagatcacaa	ccggctcatg	ataacctgat	gggtacgatg	540
tggctcaatg	cgggatcaga	aattcaggtc	gctggattcg	actactcatg	tgcaataaac	600
gcccgcagcta	atacgcaaca	atttgagcat	attgtacagc	ttcgaagggt	gttgactaca	660
gctacaataa	ctcttttacc	agatgcagaa	agatttagtt	ttccaagagt	gattacttca	720

gctgacggag	cgactacatg	gtacttcaat	ccagtgattc	ttagacccaa	taacgttga	780
atagagttc	tactaaacgg	gcagataata	aatacttacc	aagcaagatt	tggaacgc	840
atagcttagaa	attttgatac	aatttagattg	tcatttca	tgatgagacc	accaaatatg	900
acaccagcg	tagcggcg	tttccaaat	gcccgc	ttgaacatca	cgcaacagta	960
ggactcacgc	ttagaattga	atctgcagtt	tgtgaatcag	tacttgc	cgcaagcgaa	1020
acaatgctag	cacaagtgc	atctgttaga	caagaatacg	cgataccagt	tggaccagtt	1080
tttccaccag	gtatgcagtg	gactgatttgc	atcactaact	attcaccatc	tagagaggat	1140
aacttgcagc	gtgtatttac	agtggcttcc	attagaagca	tgcttgtaa	atga	1194

<210> 16
 <211> 1348
 <212> DNA
 <213> Artificial sequence

<220>
 <223> VP6 strain RF open reading frame, modified sequence,
 with signal peptide

<400> 16	60					
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agccgc	catg	gctccagg	ccggacgtc	cctgctctg	gctttgccc	120
gc	ctggctt	caggaggctg	gcgcgt	gatgtc	tactccct	180
taaagatgct	agagacaaa	ttgtcgaagg	cacactgtac	tcccaagtca	gtgatctcat	240
tcagcagtt	aatcagatga	ttattactat	gaatggcaat	gagttccaga	ctggaggcat	300
tggcaatctc	cccattagaa	atttggaa	tgat	ttggaa	caactctgct	360
caatctggat	gctaactacg	tcgaaacggc	ccgcaata	attgattatt	ttgtcgattt	420
tgtggataat	gtctgtatgg	acgaaatgg	tagaaatca	cagagaaatg	gcattgcacc	480
acagtcagat	tcacttatca	agctctcagg	cattaaattc	aaacgcatta	attttgacca	540
gtcatcagaa	tacatcgaga	actggaaatc	gcaaaataga	agacagagaa	cgggattcac	600
atttcataaa	ccaaacattt	tcccttattc	cgcttc	acgctcc	gctcacagcc	660
cgctcatgat	aacctgatgg	gcacgatgt	gctcaatg	ggctcagaaa	tccaggtcgc	720
tggattcgac	tactcatgt	caattaacgc	cccagcta	acgcagc	ttgagcatat	780
tgtgcagctt	agaagggtgc	tcactacagc	tacaatcact	cttctg	atgcagaaag	840
attcagttt	cccagagtga	ttacttcagc	tgacggag	actacatgg	acttcaatcc	900
agtgattctt	agaccaaata	acgttgaat	tgagttctg	ctcaacggac	agatcattaa	960
tacttaccag	gcaagattt	gaacgatcat	cgctagaaat	tttgata	ttagactgtc	1020
atttcagctc	atgagaccac	caaacatgac	accagccgtc	gctccct	ttccaaatgc	1080
tcagccattt	gaacatc	caacagtgg	actcacg	agaattga	cagcagtgt	1140
tgaatcagtc	cttgc	caagcga	aatgctgg	caagt	ctgttagaca	1200
ggaatacgcc	attccagtt	gaccagttt	tccaccag	atgcagtg	ctgatctgat	1260
cactaactat	tcaccatcta	gagaggataa	cctccagc	gtgttacag	tggcatccat	1320
tcgcagcatg	cttgc	gagcgc	gc			1348

<210> 17
 <211> 1061
 <212> DNA
 <213> Human rotavirus

<220>
 <223> G9 strain 97CM113 outer capsid protein (VP7)

<400> 17	60					
ggctttaaaa	gagagaattt	ccgtctgg	agcggttatt	tccttttaat	gtatggatt	60
gaatatacca	caattctaac	ctttctgata	tcaatagttt	tattgaacta	tatattaaa	120
tcactaacta	gtgcgatgg	tttcataatt	tatagattt	ttttactt	tgttattgca	180
tcaccc	tttt	ttaaaacaca	aaattatgg	attaatttac	cgatcactgg	240
acagcatatg	caaattcatc	acagcaagaa	acat	tttgc	atgcttat	300
tatcctacag	aagcgtcaac	tcaaatttgg	gatacgg	ggaaggatac	tctgtccaa	360
ttattcttga	ctaaagggt	gccaa	cttgc	ttaaagaata	caccgat	420

gcttcattct	caattgatcc	gcaactttat	tgtgattata	atgttgtact	gatgaagtat	480
gattcaacgt	tagagctaga	tatgtctgaa	ttagctgatt	taattctaaa	tgaatggta	540
tgttaacccaa	tggatataac	attatattat	tatcagcaaa	cagatgaagc	gaataaatgg	600
atatcgatgg	gacagtcttg	taccataaaa	gtatgtccat	tgaatacgca	gacttttagga	660
atagggttga	ttaccacaaa	tacagcgaca	tttgaagagg	tggctacaag	tgaaaaaatta	720
gtaataaccg	atgttgtga	tgggtgaac	cataaacttg	atgtgactac	aaataacctgt	780
acaatttagga	attgttaagaa	gttgggacca	agagaaaaatg	tagcgattat	acaagtccgt	840
ggctcagatg	tgttagatat	tacagcggat	ccaactactg	caccacaaac	tgaacgtatg	900
atgcgagtaa	attggaagaa	atggtggcaa	gttttctata	cagtagtaga	ttatattaaat	960
cagattgtgc	aagttatgtc	caaaagatca	cggtcattaa	attcagcagc	tttttactat	1020
agggtttgat	atatcttaga	ttagaattgt	atgatgtgac	c		1061

<210> 18

<211> 1062

<212> DNA

<213> Human rotavirus

<220>

<223> G9 strain 02-22 capsid protein VP7 gene

<400> 18

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gaatatacca	caattctaac	ctttctgata	tcaatagttt	tattgaacta	tatattaaaa	120
tcactaacta	gtgcgtatgg	cttataatt	tatagatttc	ttttacttat	tgttattgca	180
tcatctttg	ttaaaaacaca	aaattatgga	attaattac	ogatcactgg	ctccatggat	240
acagcatatg	caaattcatc	acagcaagaa	acattttga	cttcaacgct	atgcttatat	300
tatcctacag	aagcatcaac	tcaaattgga	gatacggat	ggaaggatac	tctgtcccaa	360
ttattcttga	ctaaagggtg	gccaaactgga	tcagtctatt	ttaaagaata	cactgatatc	420
gcttcattct	caattgatcc	acaactttat	tgtgattata	atgttgtact	gatgaagtat	480
gattcaacgt	tagagctaga	tatgtctgaa	ttagctgatt	taattctaaa	tgaatggta	540
tgttaacccaa	tggatataac	attatattat	tatcagcaaa	cagatgaagc	gaataaatgg	600
atatcgatgg	gacagtcttg	taccataaaa	gtatgtccat	tgaatacgca	gacttttagga	660
atagggttga	ttaccacaaa	tacagcgaca	tttgaagagg	tggctacaag	tgaaaaaatta	720
gtaataaccg	atgttgtga	tgggtgaac	cataaacttg	atgtgactac	aaataacctgt	780
acaatttagga	attgttaagaa	gttgggacca	agagaaaaatg	tagcgattat	acaagtccgt	840
ggctcagatg	tgttagatat	tacagcggat	ccaactactg	caccacaaac	tgaacgtatg	900
atgcgagtaa	attggaagaa	atggtggcaa	gttttctata	cggtagtaga	ttatattaaat	960
cagattgtgc	aagttatgtc	caaaagatca	cggtcattaa	attcagcagc	tttttactat	1020
agggtttgat	atatcttagg	ttagaattgt	atgatgtgac	ca		1062

<210> 19

<211> 1062

<212> DNA

<213> Human rotavirus

<220>

<223> G3 strain MaCH09004 outer capsid protein (VP7) gene,
complete cds

<400> 19

ggcttaaaaa	gagagaattt	ccgtctggct	agcggttagc	tccttttaat	gtatggatt	60
gaatatacca	cagtttaac	cttttgcata	tcagttatat	tgttgaatta	cgtáctcaaa	120
tccttaacta	gaataatgga	ctttattatt	tacagatttc	ttttaattat	agttatatta	180
tcaccactcc	ttaatgcaca	aaattatgga	ataaatcttc	cgattactgg	ctcaatggac	240
acaccatata	cgaactcaac	gcgagaggaa	gtattcctaa	cttcgacttt	atgttgtat	300
tacccaactg	aagcagcaac	agaaataat	gataattcat	ggaaggatac	acttctcag	360
ctatttttaa	tcaaaggatg	gcacaacagga	tctatttatt	ttaaagatta	tactgatatt	420
gcctcgttt	cagtcgatcc	acaactgtat	tgtgattata	atgttgtatt	aatgaaatat	480
gacgctacac	tgcaactgga	catgtccgaa	ctagcagatt	tgttacttaa	tgagtggta	540

tgtaatccta tggatattac tttgtattat tatcaacaaa ctgatgaggc aaaa <u>aaaa</u> yy	600
atttcaatgg gatcatctt g tactataaag gtatgtccac taaatacgca aacatttagga	660
attgggtgtc taacaactga tacaaacacg tttgaagaag ttgcaacagc tgaaaaattta	720
gtgattactg acgtttaga tggagtcaat cataaattga acgtgacaac aaacacttgt	780
acgattcgaa attgtaaagaa attaggacca agggaaaacg tagcagttat acaggttaggt	840
ggcccgatg tgcttgacat aacagctgat ccaacgacaa tgccacaaac agaaagaatg	900
atgcgagtga attggaagaa atggtgccaa gtgtttata caatagttga ctacgtgaat	960
caaattgtgc aagcaatgtc caaaagatcg agatcattaa attctgctgc atttactac	1020
agagtataga tatagcttag attagaattt tatgatgtga cc	1062

<210> 20
<211> 981
<212> DNA
<213> Human rotavirus

<220>
<223> G12 VP7 gene for capsid protein, complete cds

<400> 20	
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tatataattaa aatcaataac taatataatg gactttatca tatatcggtt tttactaata	120
gttgttgtca tgctgccatt tattaaagct caaaattatg gaataaaatct tccaaataaca	180
ggttctatgg ataccgcata tacaaactcc acacaacaag agaattttat gacttccact	240
ttatgcttat attatccaaag ttcaagtcacg actgaaataa ctgaccccgaa ttggacgaac	300
acactgtcac aactttcat gactaaagga tggccgacaa attccgtcta cttcaagagt	360
tatgctgata tagcgtcctt ctctgttagat ccgcagttat attgtgatta caatattgtg	420
ttagtagt accaaaattc attagcgttg gatgtctcag aacttgctga tttaaattta	480
aatgaatggt tatgtaatcc gatggacgta acgttgtact attatcaaca aacagatgaa	540
gcgaataaaat ggatatcaat gggagaatca tgtacggta aagtatgtcc cttaaatacg	600
caaactttag gaattggatg tacaacaaacc gacgtcacaa catttgaaga ggtacaaac	660
gcggaaaaat tagtaataac tgacgtcgtg gatggagtca atcacaagat taatattaca	720
atgaatacat gtactatacg gaattgcaaa aagttaggac cgaggaaaa tgtagcaatt	780
atacaagtag gtggttctga cgtcatagac ataacagcag atccaacaaac gatcccacaa	840
actgaaagaa tgatgcgaat aaattggaaa aaatggtggc aggtgtttt taccgttagta	900
gattacataa atcaaatagt tcaggtaatg tccaaacgat caagatcact aaattcagct	960
gcttttact acagaattta g	981

<210> 21
<211> 1062
<212> DNA
<213> Human rotavirus

<220>
<223> G3 strain MaCH09404 outer capsid protein (VP7) gene, complete cds

<400> 21	
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gaatataccca cagtttaac cttttata tcagttatat tggtaattt cgtactcaa	120
tccttaacta gaataatgga ctttattt tacagatttc ttttaattt agttatatta	180
tcaccactcc ttaatgcaca aaattatgga ataaatctc cgattactgg ctcaatggac	240
acaccatata cgaactcaac gcgagagggaa gtattctaa cttcgacttt atgtttgtat	300
tacccaactg aagcagcaac agaaataat gataattcat ggaaggatac actttctcag	360
ctatttttaa tcaaaggatg gccaacagga tctattttt taaaagatta tactgatatt	420
gcctcggttt cagtcgatcc acaactgtat tgtgattata atttggatt aatgaaatat	480
gacgctacac tgcaactgga catgtccgaa ctagcagatt tgttacttaa tgagtggta	540
tgtaatccta tggatattac tttgtattat tatcaacaaa ctgatgaggc aaataaatgg	600
atttcaatgg gatcatctt tactataaag gtatgtccac taaatacgca aacatttagga	660

attgggtgtc taacaactga tacaaacacg tttgaagaag ttgcaacagc tgaaaaaatttttt 780
gtgattactg acgttgtaga tggagtcaat cataaattga acgtgacaac aaacacttgt 840
acgattagaa attgtaagaa attaggacca aggaaaacg tagcagttat acaggttaggt 900
ggcccagatg tgcttgacat aacagctgat ccaacgacaa tgccacaaac agaaagaatg 960
atgcgagtga attggaagaa atggggcaa gtgtttata caatagtga ctacgtgaat 1020
caaattgtgc aagcaatgtc caaaagatcg agatcattaa attctgctgc attttactac 1062
agagtataga tatagcttag attagaattg tatgatgtga cc

<210> 22
<211> 7
<212> PRT
<213> Artificial sequence

<220>
<223> HIV epitope

<400> 22

Arg Thr Pro Lys Ile Gln Val
1 5

<210> 23
<211> 6
<212> PRT
<213> Artificial sequence

<220>
<223> HIV epitope

<400> 23

Glu Leu Asp Lys Trp Ala
1 5